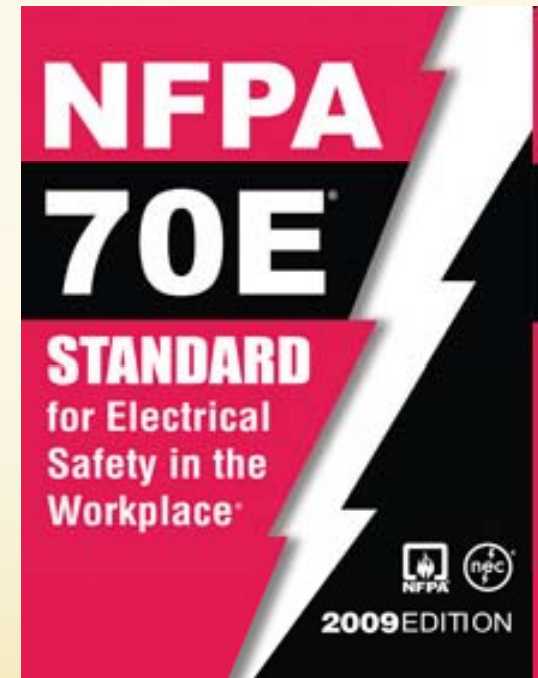
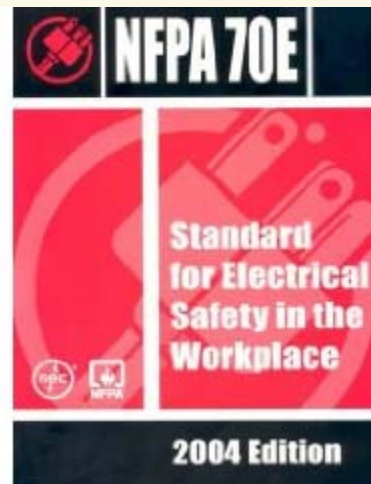
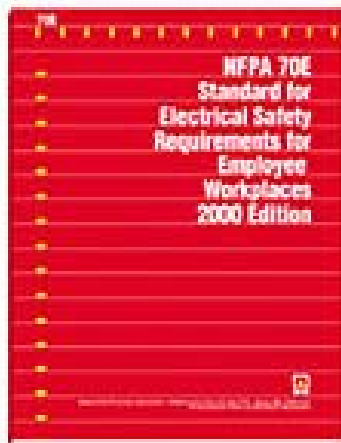
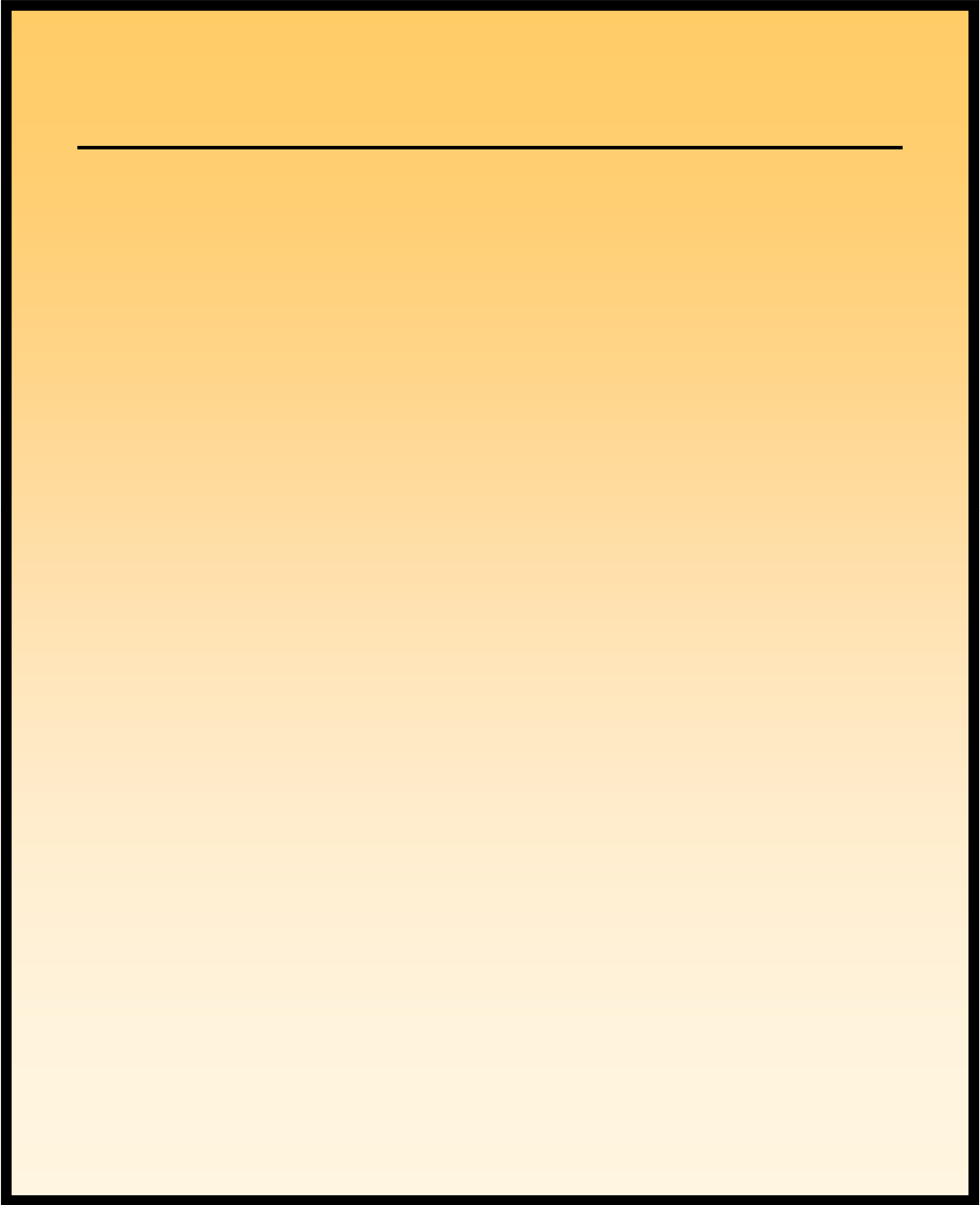


NFPA 70E

Past, Present, and Future



Keith Gershon, Electrical Safety Engineer
Lawrence Berkeley National Laboratory



- **Fed Register #: 72:7135-7221**
- **Title: Electrical Standard; Final Rule**
- **Publication Date: 02/14/2007**
- **DATES: This final rule becomes effective on August 13, 2007.**
- **(CalOSHA adopted Feb.08)**



What did OSHA really do in the new Subpart S?

- Updated sections 1910.302 through 308, which deal with *installations* only.
- Aligned OSHA regs with parts of 1999 NEC and 2000 NFPA 70E
- Did NOT touch 1910.309 to 398, Safety-related Work Practices.

Don't Panic!

Do We Have To Do It ?

- **Legal Status of NFPA 70E**
 - Not adopted by OSHA
 - Not adopted by CalOSHA
 - Mandatory for DOE 10CFR851
- **DO IT ANYWAY!**

- **Why?**



OSHA & NFPA

How Do They Work Together:

**NFPA 70E is a “how to comply” standard for
OSHA electrical regulations.**

OSHA General Duty Clause:

(a) Each employer --

(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;

California Labor Code:

6400. (a) Every employer shall furnish employment and a place of employment that is safe and healthful for the employees therein. ;



OSHA :

29 CFR 1910.132(d) Personal Protective Equipment

(1) Hazard Assessment and PPE

The employer shall assess the workplace to determine if hazards are present, or likely to be present, which necessitate PPE.

29 CFR 1910.335(a) Use of protective equipment

Personal protective equipment

(i) Employees working in areas where there are potential electrical hazards **shall be provided with, and shall use,** electrical protective equipment that is appropriate for the specific parts of the body.....



NFPA 70E **2009** ed.

- *Chapter 1: Safety–Related Work Practices*
- *Chapter 2: Safety-Related Maintenance Requirements*
- *Chapter 3: Safety Requirements For Special Equipment*



NFPA 70E 130.1

Electrically Safe Work Condition

Live parts to which an employee may be exposed **shall be** put into an electrically safe work condition before the employee works on or near them, unless the employer can demonstrate that de-energizing introduces additional or increased hazards or is infeasible due to equipment design or operational limitations.

infeasible

adj : not capable of being carried out or put into practice

inconvenient

adj : not suited to your comfort, purpose or needs



Before Opening the Cover for any Reason

1. Determine that it is infeasible to de-energize the equipment. ****DO NOT CONTINUE UNTIL THIS HAS BEEN DONE****
2. Analyze the shock and arc hazards
3. Determine safe working methods
4. Determine appropriate PPE
5. Get an energized work permit
Not required for testing / troubleshooting

Art 330 Lasers: Training of Operators and Maintenance Personnel

- High voltages (> 1 kV) and stored energy in the capacitor banks
- Circuit components, such as electron tubes, with anode
- Voltages greater than 5 kV emitting X-rays
- Capacitor bank explosions
- Production of ionizing radiation
- Poisoning from the solvent or dye switching liquids or laser media
- High sound intensity levels from pulsed lasers



Art 330 Lasers

- **Proof of Qualification.** Proof of qualification of the laser equipment operator shall be available and in possession of the operator at all times.
- **Master Control.** High power laser equipment shall include a key-operated master control.
- **High-power laser equipment** shall include a failsafe laser radiation emission audible and visible warning when it is switched on or if the capacitor banks are charged.
- **Beam shutters or caps** shall be utilized, or the laser switched off, when laser transmission is not required. The laser shall be switched off when unattended for 30 minutes or more.

Questions for NFPA:

- Is it appropriate for an *electrical safety* Standard to address non-electrical, i.e., beam, hazards
- Why does 70E get into such detail as prohibiting unattended operation greater than 30 minutes?
- Should there even be a laser article in 70E

How to change things

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2. Proposal Recommends (check one): ☐ new text ☐ revised text ☐ deleted text

3. Proposal (include proposed new or revised wording, or identification of wording to be deleted): (Note: Proposed text should be in legislative format, i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).)

4. Statement of Problem and Substantiation for Proposal: (Note: State the problem that would be resolved by your recommendation; give the specific reason for your Proposal, including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.)

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7/27/2010

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- Go to NFPA.org

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- Too late for 2012 revision. Next one is 2015

THANK YOU!

Any questions?

